

4.3 RST Technical Approach

System Delivery

4.3.1 Sub-Product AFCI



RSO

Preparation for C-17 Flight Test

System Requirements Definition

PDR

Design AFCI System

CDR

System Development



SW Integration and Testing in Hardware in the loop simulations at Boeing, Long Beach Test Facility

ECS Investment Focus Flight Demo

Implementation of flight safety procedures

Pilot and ground crew training



Final Report including pilot feedback on system performance

TRL-7

Tech Transfer

- •Technology transfer to UCAV phase B
- •Trial FAA certification procedures

(in V&V phase of IFCS, working closely with Boeing Wichita for FAA certification processes)

•Team with industry for technology transfer efforts

TRL9

CICT:

Research Grade Intelligent Flight Control Software-Tested in ARC SIM



NEURAL NET Control Technology

Initial IFC flight tests on F-15



CICT:
Develop Tec

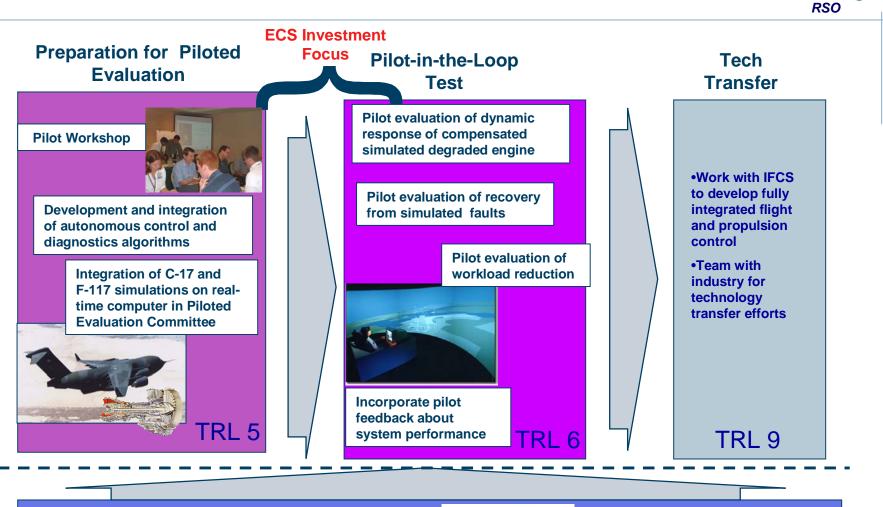
Develop Technologies for V&V of on-line learning control software

Vehicle Systems: Research Flight Computer



34.3 RST Technical Approach

4.3.2 Sub-Product Autonomous Propulsion System Technologies



Data Fusion (CICT/ITSR/Intelligent Control and Diagnostics) Model-Based Control
And Diagnostics
(AvSP/SAAP/Propulsion
System Health Management)



FADEC

Life Extending Control (CICT/ITSR/ICD/ Intelligent Life Extending Control)



4.3 RST Technical Approach

4.3.3 Sub-Product Spacecraft Mobile Monitor



RSO



Technology Maturation & Integration

& Integration

Development and integration of autonomous control and diagnostics algorithms

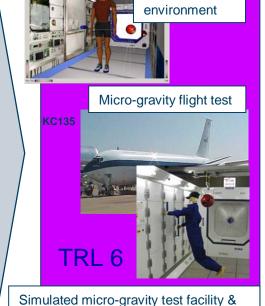
Test scenarios for integrated technology performance evaluation

Evaluation of crew workload & risk reduction



Development, Evaluation, and Integration of Spacecraft Mobile Monitor components

Ground/Flight Experiments



Simulated ISS

Tech Transfer

- •Work with Mission Operations to develop flight validate autonomous mobile monitoring on ISS
- •Team with UAV efforts in NASA, industry & military
- •Education and outreach to encourage students to prepare for careers in science, technology, engineering and mathematics

Model-based Flexible Planning & Execution (CICT/IS/Automated Reasoning)

Model-Based Diagnostics (CICT/IS/Automated Reasoning)

Real-time Stereo-visionbased Localization & Obstacle Avoidance (SRI International/ DARPA)



Mockup & 2D Prototype (CETDP/Automation)

ISS Module Mockup